

**REMARKS**

The Examiner made minor objections to claims 7, 8 and 15 and as the Examiner will note by reference to the amendments made above, the Examiner's objections have been addressed.

The Examiner rejects claims 1, 2, 9, 16, 23 and 27 as allegedly being fully anticipated by Williams H1791. This grounds is for rejection is respectfully traversed.

In making the rejection, the Examiner reads part of the claim on the embodiment of Fig. 4 and another part of the claim on the embodiment of Fig. 8. However, there is no single embodiment in Williams which anticipates the rejected claims and thus the rejection is improper.

Fig. 4 Williams shows a simulated Brillouin scattering device which includes a single Brillouin medium identified by reference numeral 46. The Brillouin medium has a signal receiving end 50C and a signal output end 58, it being understood, of course, that the back scattering light generated in the Brillouin medium would travel in the opposite direction, that is the direction of 50C. The back scattering light is known as the Stoke's waves.

Fig. 8 shows an alternative arrangement for generating Stokes waves. Note that it it has a signal receiving end 50C and an output 58, as identified by the arrows and that the Stoke's light generated therein would travel in the opposite direction. The arrangement shown in Fig. 8 which is a fiber optic ring configuration can be substituted for the Brillouin medium 46 shown in Fig. 4. Note that in Williams the embodiment of Fig. 8 is identified as an **alternate embodiment** (see col 3, lines 11 & 12) for generating the Stoke's waves and note the numbering of its input 50C and output 58 is identical to the numbering for the Brillouin medium 46 shown in Fig. 4.

The fiber optic ring resonator 78 of Fig. 8 operates in a similar manner to the Brillouin medium 46 of Fig. 4. However, it has a lower SBS threshold and, indeed, Williams teaches making the

Brillouin threshold as low an input power as possible, to maximum the filter sensitivity. Thus, it

appears that there are certain advantages in using the ring embodiment of Fig. 8 in place of the medium 46 in the embodiment of Fig. 4. However, in the passages cited by the Examiner, Williams certainly does not use first and second SBS mediums in a single embodiment. Note that claim 1 specifically recites “a first simulated Brillouin scattering medium” and “a second simulated Brillouin scattering medium”. Williams teaches no embodiment which includes first and second simulated Brillouin scattering mediums as recited in claim 1.

With respect to claim 16, it is not seen how Williams possibly meets the limitation of “generating a set of Stokes waves from said second light wave signal” and “seeding said first simulated Brillouin scattering medium with said set of Stokes waves” as specifically recited in claim 16. In a similar vein, it is not understood how Williams allegedly meets the “means for generating a set of Stokes waves from said second light wave signal” and “means for seeding the first simulated Brillouin scattering medium with the set of Stokes waves” as specifically recited in claim 27.

Reconsideration and withdrawal of the rejections based upon Williams is respectfully requested.

Claims 1, 2, 9-12, 16-18 and 23-27 were rejected under 35 U.S.C. as allegedly being fully anticipated by Yao, U.S. Patent No. 5719179. This grounds for rejection is also respectfully traversed.

The Examiner refers the applicant to Fig. 7A, 8A and 8C. However, the numerals which the Examiner uses in attempting to read the Yao disclosure on the claims appear to refer to only the embodiment of Fig. 7A. So let us turn to that embodiment first. The Examiner asserts, with respect to Fig. 7A that a “second SBS medium 720”... “receives a second signal and inherently generates a Stokes light.”

In order to refresh the Examiner recollection of how Stokes light is produced, enclosed herewith is a copy of a document published on the Internet which describes the physics of Brillouin scattering. Note that in order to achieve Stokes light, a light wave and an acoustic wave travel in

a common piece of material noting that due to density changes in the material caused by the acoustic waves Stokes light occurs.

Now look at Fig. 7A of Yao. The pump laser 260 apparently provides the acoustic energy so as to cause the SBS and the generation of Stokes light in Brillouin feedback loop 250.

But look closely at loop 270. Note the absence of a pump laser. So how does medium 720 “inherently” generate Stokes light as asserted by the Examiner in the Official Action? Indeed, it is submitted that Yao teaches just the opposite. Note the discussion of Fig. 7A at col. 4, lines 45-47 wherein the embodiment of 7A is described as a multiloop Brillouin OEO using a Brillouin loop and a non-Brillouin opto-electronic loop! That which the Examiner asserts Yao “inherently” teaches is exactly what Yao says does not happen!

Yao does teach, however, an embodiment with two Brillouin feedback loops. See Fig. 8C. However, that embodiment still does not meet applicant’s claims. Claim 1 specifically requires that “said second simulated Brillouin scattering medium generating Stokes light in response to said second divided signal, said second simulated Brillouin scattering medium being coupled to the first simulated Brillouin scattering medium for providing said Stokes light thereto”. If the Examiner wishes to assert that coupler 710 “inherently” provides such functionality, the Examiner is requested to kindly put any such factual assertions into affidavit format as specifically required by the rules of practice. See 37 C.F.R. 1.104 (d)(2).

Turning briefly to claim 2, the Examiner asserts that “the signal propagates in a reverse direction”. Claim 2 recites that “the Stokes light coupled to the first simulated Brillouin scattering medium propagates in a reverse direction compared to said first divided signal received by said first simulated Brillouin scattering medium.” If the Examiner continues to reject claim 2 based on the prior art, then the Examiner is respectfully requested to point out, with specificity, just how that limitation is allegedly met by Yao, whether the Examiner considers the coupling to occur at RF coupler 730 or at optical coupler 710 since whatever the Examiner’s theory might be for coupling the Stokes light from the first simulated Brillouin

scattering medium to the second Brillouin scattering medium, it is not seen how any possibly coupled Stokes light would be traveling “in a reverse direction compared to said first divided signal received by the first stimulated Brillouin scattering medium” as specifically claimed by claim 2.

Turning to claims 16 and 27, it is first noted that the Examiner misconstrues Fig. 7A and 8A as previously discussed and, with respect to Fig. 8C, it is not seen how that figure or indeed any of the figures of Yao, possibly meet the limitation “generating a set of Stoke waves from said first light wave signal” and “seeding said first stimulated Brillouin scattering medium with said set of Stoke waves, whereby a threshold for said stimulated Brillouin scattering medium may be set lower than the threshold would be set without said seed” as specifically claimed by claim 16 or “means for generating a set of Stoke waves from said second lightwave signal” and “means for seeding the first stimulated Brillouin scattering medium with said set of Stokes waves” as specifically claimed by claim 27.

**Conclusion**

In view of the above, reconsideration and allowance of all the claims are respectfully solicited.

The Commissioner is authorized to charge any additional fees which may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, then the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136 (a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

I hereby certify that this correspondence is being deposited with the United States Post Office with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on

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(Date of Transmission)

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